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THE PRACTICAL VALUE OF GOOD STORE AND SHOW-WINDOW LIGHTING AS SHOWN BY THE LIGHTING TEST AT THE UNITED CIGAR STORES COMPANY, TENTH AND CHESTNUT STREETS, PHILADELPHIA*

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SYNOPSIS: The Paper reports the results of tests conducted in a store of the United Cigar Stores Company, Philadelphia, under conditions which afford a direct comparison of the attracting power of adequate store and window lighting during mid-day hours, first, under existing lighting conditions, and secondly, with new high-intensity lighting substituted for the old. A record was kept of the number of people passing, the number of people stopping, the number of people entering, as well as the number, amount and character of purchases under both conditions of lighting. A test was also made for a three day period during which amber color caps were used instead of clear lamps, giving a comparison of results achieved under the old and the two new systems of window lighting.

It has long been recognized that the character of the lighting has an important bearing upon the revenue of a retail store. Many tests have been conducted with the idea of assigning a definite figure to the advertising value of good show-window lighting, and to the value of good interior illumination in terms of increased sales.

The results of these investigations have been so conclusive that no one can question the statement that, in general, good show-window and store illumination is an excellent investment which will pay enormous dividends. However, when we attempt to assign a definite value to the benefits of good commercial illumination we find that so many variables are involved that such prediction becomes a practical impossibility with our present knowledge of the subject. The best we can do is to strike an average, using as large a number of cases as possible.

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With the idea of bringing the story of better lighting closer home to its store customers, the Philadelphia Electric Company decided to conduct several tests of this type. It was felt that such information would provide sales arguments for the lighting engineers which would be far more convincing than any general information available from tests in other cities.

In selecting a location for such a test the following characteristics are desirable:

1. A location where the traffic is dense.
2. Closed show-windows.
3. A dark interior requiring artificial light all day.
4. Existing lighting below standard.
5. A store selling a large number of low priced articles.
6. A store where many people enter with no intention of buying.
7. Cordial relations with the proprietor.

In accordance with the above plan, arrangements were made with the Philadelphia Branch of the United Cigar Stores Company to conduct such a test at their store on the northeast corner of Tenth and Chestnut Streets.

The store selected is typical of those operated by this company. Figs. 1 and 3 show the arrangements of the show-window and the store interior under the old conditions. Figs. 5 and 5-A show the location and lighting layout.

The show-windows were only three feet in depth. The original lighting installation consisted of seven ceiling outlets on the Chestnut Street side, three of which were empty, and six on the Tenth Street side, two of which were empty. Those sockets which were filled were equipped with 50-watt prismatic reflectors, and 100-watt lamps. This arrangement gave an average light intensity of 25 foot-candles.

Opposite the Chestnut Street window is a four-story building of gray stone, with a Child's Restaurant on the street level. Opposite the Tenth Street window is the eight-story gray stone Liberty Building.

Since the maximum illumination intensity outside of the show-window was over ten thousand foot-candles, during the period of the test, the daylight reflections were rather severe. In common

FIG. 1—Photograph of test window under old lighting conditions.

FIG. 2—Photograph of test window with modern high-intensity lighting.

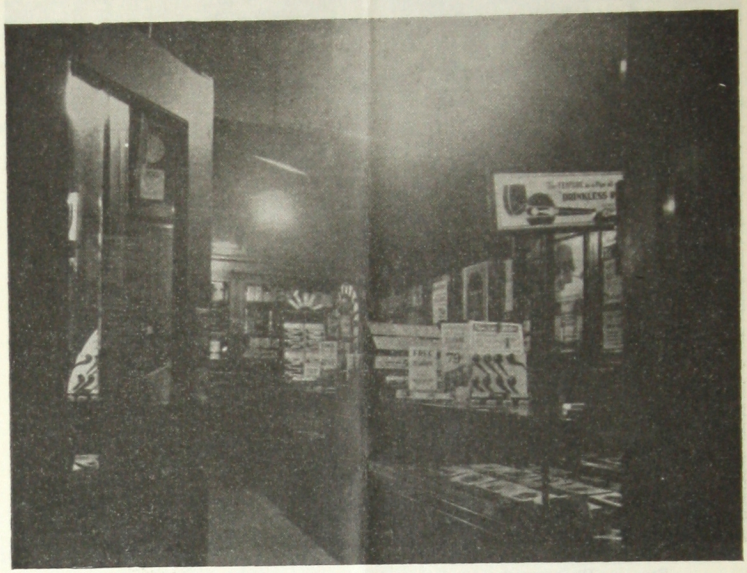

FIG. 3—Photograph of test store interior under old lighting conditions.

FIG. 4—Photograph of test store interior under modern lighting conditions.

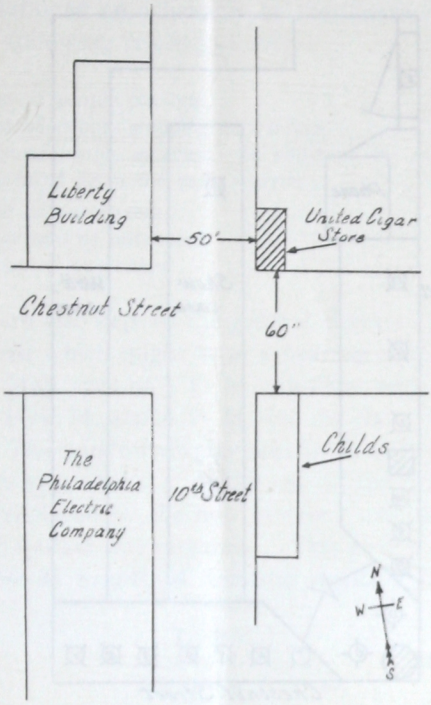

FIG. 5—Location of United Cigar Store, the lighting of which is described herein.

with most retail stores it is customary to lower an awning at certain hours of the day when the outside illumination is extremely high.

The original interior lighting equipment consisted of two open prismatic shades designed for 100-watt Mazda B lamps. One was equipped with a 150-watt and the other with a 200-watt clear lamp. The resultant illumination intensity, 7.8 foot-candles, was fair, but the shadows were harsh and the distribution poor. In fact, so bad were these conditions that often articles of merchandise on the counters were practically invisible to the customer.

Since the location and number of outlets in both the show-windows and the store interior were good, it was decided to make no change in this respect for test purposes. As the thirteen show-window outlets were already supplied with the proper shade-holders it was a simple matter to raise the light intensity to a high

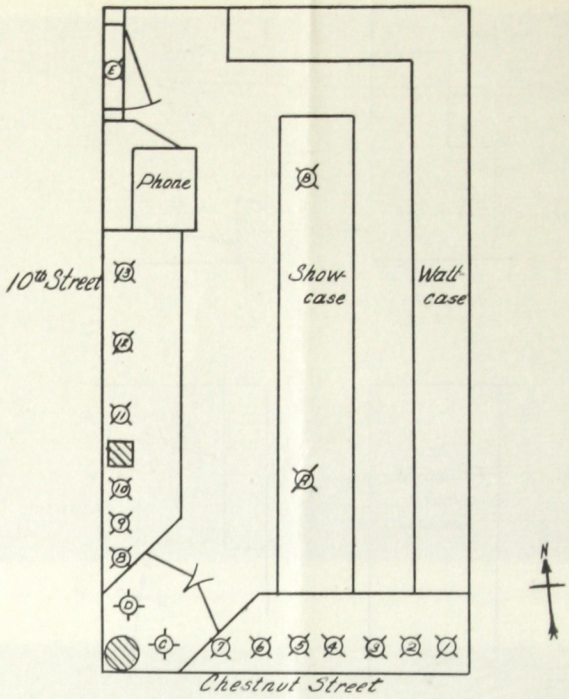

FIG. 5-A—Plan of United Cigar Store, Tenth and Chestnut Sts., Philadelphia, Pa.
Old System—Outlets No. 1, 3, 5, 7, 9, 11, 12 and 13, 100 watts each. A, 200 watts; B, 150 watts; C, D, E, 60 watts.
New System—Outlets No. 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 150 watts each. A, B, 300 watts each; C, D, E, 200 watts each.

value by merely equipping each outlet with a prismatic angle reflector and a 150-watt clear lamp. This gave a show-window intensity of 75 foot-candles with artificial light alone. The maximum intensity using both artificial and natural illumination was 193 foot-candles. On account of the light background this arrangement gave fairly good results, although the daylight reflections were not by any means eliminated.

Because of the character of the display it seemed inadvisable to introduce any higher wattage into the windows, as the heat developed would be liable to injure the merchandise.

The location of the test was diagonally across the street from the Philadelphia Electric Company's downtown office. An ob-

server was stationed on a balcony on the Tenth Street side who recorded the following readings hourly:

1. Number of people passing.
2. Number of people stopping at window.
3. Number of people entering. In addition, the following readings were secured from the cash register:
1. Number of purchases.
2. Total amount of purchases.
3. Character of purchases.

Records were also kept of the general character of the weather and other items which might have a bearing on the results.

Beginning May 17th at 3 P. M. readings were taken between the hours of 9 A. M. and 9 P. M. for the dates indicated in the tabulation. The window display was fresh at the start, and was changed every two weeks. At the end of the first week the old lighting was replaced by the new system. At the end of three weeks the old system was restored. This gave a complete set of data from 9 A. M. to 9 P. M. for four weeks.

TABLE I.

Date	May 17 to May 21 June 8 to June 10	May 25 to May 28
Hour	9 A. M. to 9 P. M.	9 A. M. to 9 P. M.
Equipment	Old	New-Clear Lamps.
Foot-Candles, Interior	7.8	15
Foot-Candles, Window	20	75
Total Passers	189080	93760
No. Stop	1854	1040
Per Cent Stop	.975	1.11
Per Cent Increase		13.9
No. Enter	7514	3689
Per Cent Enter	3.95	3.94
Per Cent Increase		—0.25
No. Buy	5609	2947
Per Cent Enter Who Buy	74.6	80.0
Per Cent Increase		7.23
Per Cent Pass Who Buy	2.95	3.15
Per Cent Increase		6.78
Total Amt. Sales	$1439.57	$709.78
Amount per Passer	.756¢	.757¢
Per Cent Inc. per Passer		.13
Av. Amount Sales	25.6¢	24.1¢
Per Cent Increase		—6.22

The results of this test are recorded in Table I. In this tabulation the data taken during the first week in June were discarded

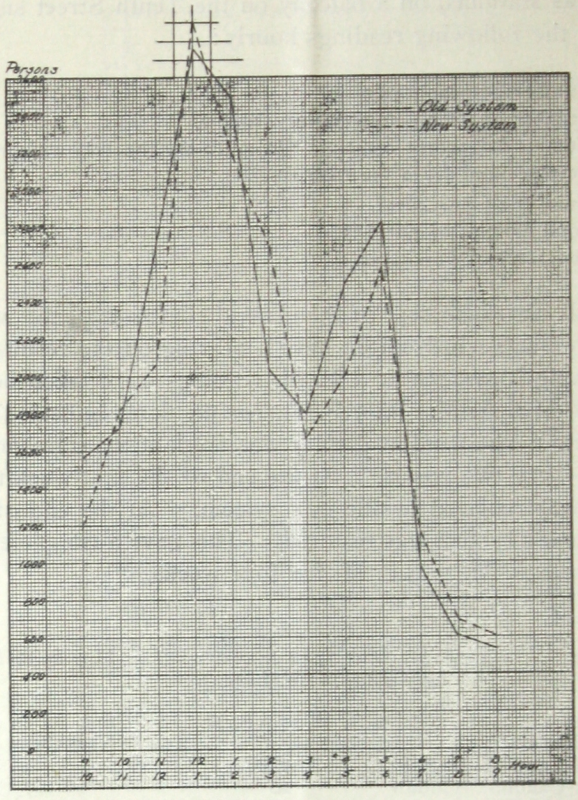

FIG. 6—Hourly variation in number of persons passing

after consulting with the store manager. This was the week of the Shrine Convention. On account of the large number of parades down Chestnut Street the attention of the passers was diverted from the show-window and store to the brilliant uniforms in the street.

A study of the remaining figures for one week under the new system, compared with two weeks under the old, shows that under modern lighting conditions practically 14 per cent more of the passers stopped at the show-windows. Seven and a quarter per cent more of those entering bought, six and three quarters per cent more of those passing bought, but the average revenue per passer remained substantially the same.

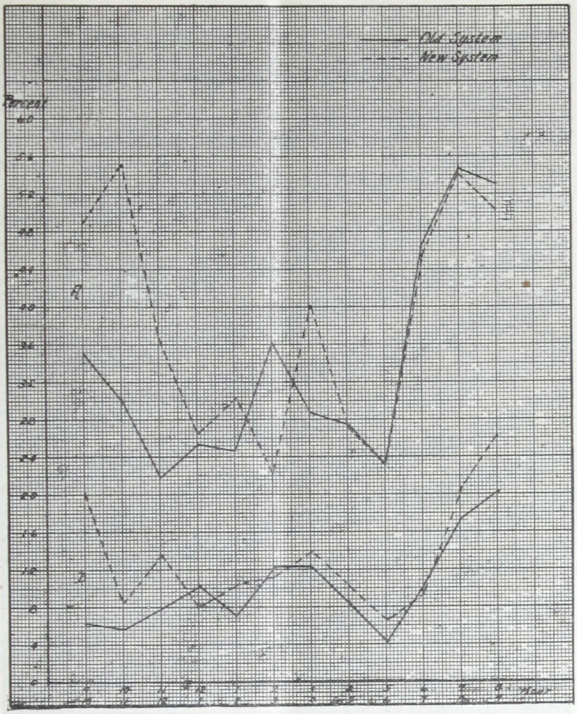

FIG. 7—A—Hourly variation in per cent of passers who buy.
B—Hourly variation in per cent of passers who stop at window.

A study of Figs. 7 and 8 reveals the fact that, with the exception of window stoppage, most of the above increases occur before 2 P. M. Moreover, about 30 per cent of the traffic for the twelve-hour period occurs between the hours of 11 A. M. and 2 P. M. (Fig. 6)

A study of the weather conditions and past store records shows that the first week under the old system was an unusually good week, and the first week under the new system was unusually cold. A marked decrease in stoppage was noticed at the adjacent windows during this week.

A study of the habits of the passers showed that many use the corner for a rendezvous. In many cases a person arriving first for a prearranged meeting would gaze at the window display for

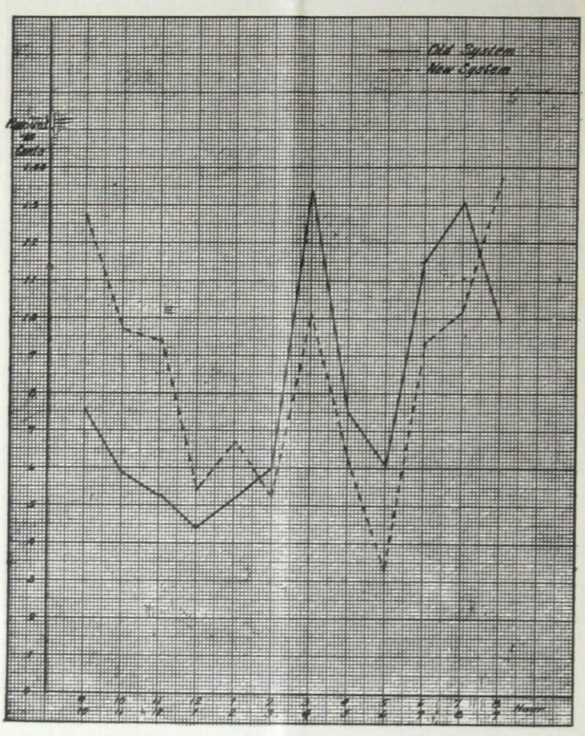

FIG. 8—Hourly variation in revenue per passer.

the obvious purpose of killing time, even though he might not have the slightest interest in the type of goods on display. As in all windows where daylight reflections are severe, these received considerable use as dressing mirrors.

The increase in percentage of those entering who become cash customers is to be expected from the large number who patronize the pay phone booths. This is undoubtedly due in a large measure to the better distribution of light which makes it much easier to see the goods offered for sale.

Since the daylight reflections were not reduced to as low a value as seemed possible, a third arrangement was tried for three days, July 1, 2 and 6, using amber color caps on all of the window outlets except one. As amber was the predominant color of the goods on display, it seemed reasonable to suppose that this would

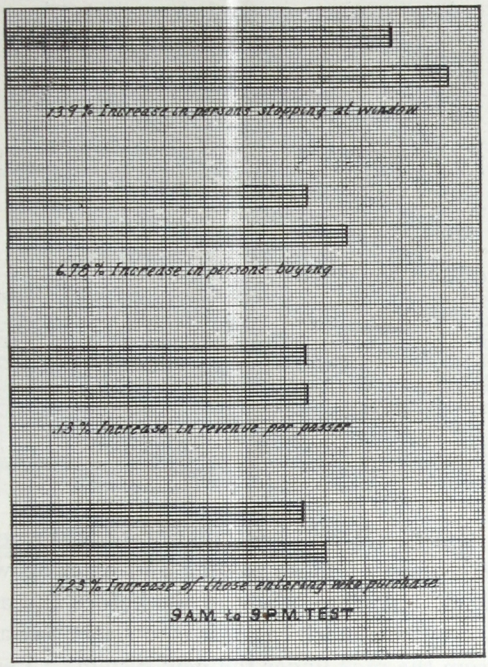

FIG. 9—Charts showing effect of modern lighting on efficiency of show window and business of store.

show some improvement. This test was operated from 11 A. M. to 2 P. M. only.

A comparison of the results of this last arrangement with those for three days of the old system, and three days with the new system using clear lamps is shown in Figs. 10, 11 and 12. The results of this test were most interesting, inasmuch as they show clearly that the greatest percentage gains from good lighting occur at the time of the day when the traffic density is the greatest.

The average store owner is interested primarily in the song of his cash register and in increasing the number of his customers. A consistent increase in revenue per passer is shown in all parts of this test except for the 2 P. M. to 9 P. M. period. This one item would more than justify the extra cost of a modern lighting system.

TABLE II

Date	June 15 to June 17	May 25 to May 27	July 1, 2, 6
Hour	11 A. M. to 2 P. M.	11 A. M. to 2 P. M.	11 A. M. to 2 P. M.
Equipment	Old	New Clear Lamps	New Amber Caps
Foot-Candle, Interior	7.8	15	15
Foot-Candle, Window	20	75	
Total Pass	32311	28488	24873
No. Stop	159	266	324
Per Cent Stop	0.49	.93	1.3
Per Cent Increase		89.8	165.1
No. Enter	949	941	864
Per Cent Enter	2.93	3.3	3.47
Per Cent Increase		12.6	18.4
No. Buy	799	810	823
Per Cent Enter Who Buy	84.0	86.0	95.1
Per Cent Increase		2.38	13.2
Per Cent Pass Who Buy	2.47	2.84	3.31
Per Cent Increase		14.9	34.0
Total Amt. Sales	$170.66	$197.47	$199.18
Amount per Passer	.523¢	.692¢	.8¢
Per Cent Inc. Per Passer		32.3	53.0
Av. Amount Sales	21.4¢	24.4¢	24.2¢
Per Cent Increase		14.0	13.1

Another item of scarcely less importance is the consistent increase in percentage of those passing and entering who become cash customers. A close study of the before and after photographs will show how much easier it is to select, say a package of cigarettes from the rack under the new system. Persons entering the store with friends, or to use the telephone booth, will thus be compelled to see articles of merchandise which otherwise would pass unnoticed. It is certainly reasonable to suppose that from habit these people would in time become regular customers.

A fact which is of special importance to central stations is the remarkable effect of light on sales in the middle of the day. Our results in this case show that an increase in load from 1.4 to 3.0 kilowatts yields a 15,000 per cent return in increased revenue upon the extra investment for energy charges in the midday hours.

In view of the high rental of the store and the exceedingly small number of passers who stop to view the window display, there is no question but that still higher light intensities can be profitably employed, at least on the Chestnut Street side, if some arrangement can be made for accomplishing this result, without raising the temperature of the window above a safe value.

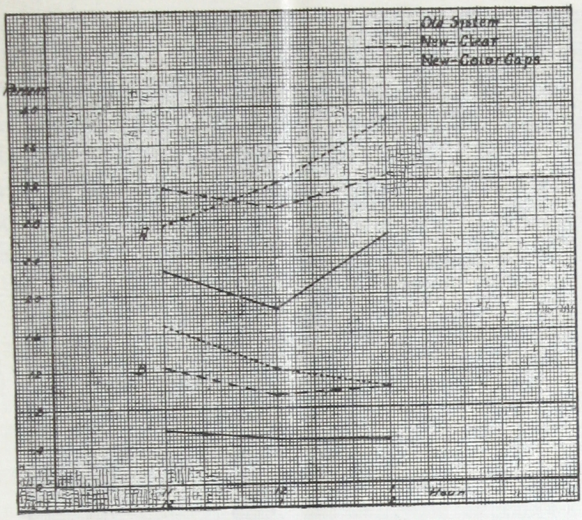

FIG. 10—A—Hourly variation in per cent of passers who buy.
B—Hourly variation in per cent of passers who stop at window.

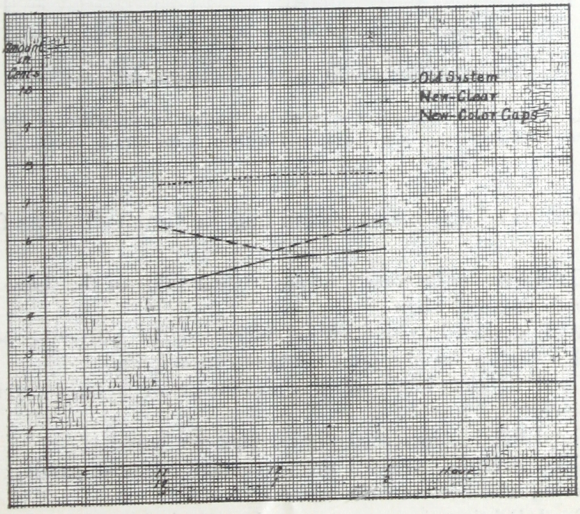

FIG. 11—Hourly variation in revenue per passer.

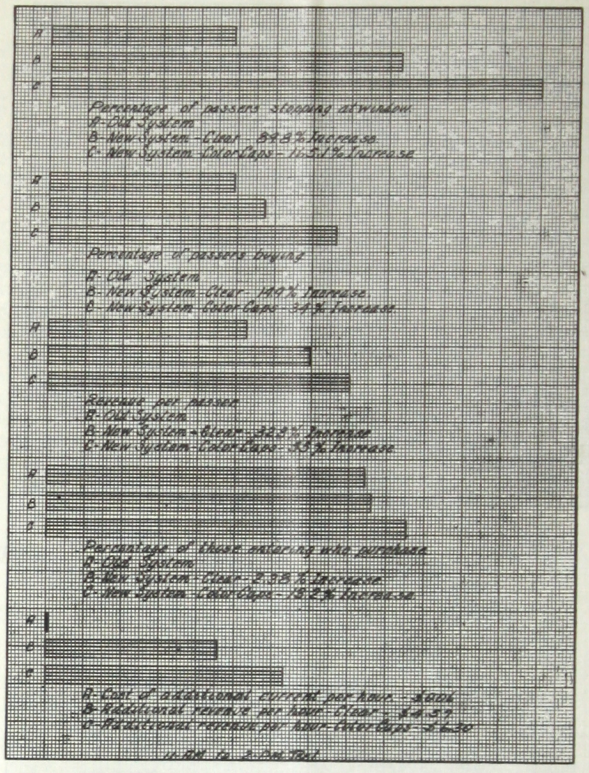

FIG. 12—Graphs showing effect of modern lighting on efficiency of show-window and business during mid-day hours with and without color toning in windows.

The results of this investigation may be summarized as follows:

1. Good lighting increased the advertising value of the show-window, both day and night.
2. Well designed color lighting increased the attractive power of the window for the same wattage consumption.
3. Good lighting increased the percentage of passers entering the store.
4. Good lighting increased the revenue per passer.
5. Good lighting increased the percentage of those passing and entering who become cash customers.
6. Good lighting, in many cases, increased the amount of the individual sale.

The magniture of the gains from better commercial lighting may vary widely with conditions, but after considering these investigations and the many others that have been carried out, there is no doubt that better show-window and store lighting pays.

In conclusion, the writers wish to express their appreciation to Mr. Rosenthal and Mr. Simons of the United Cigars Stores Company for their generous cooperation in permitting the test and giving us access to their records. Also to the Rumsey Electric Company who supplied the reflectors for the test and to Mr. A. Hopkins Jr. who supplied the color caps.

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